

# WHITE OAK NAVAL SURFACE WARFARE CENTER

## WHITE OAK, MARYLAND

Engineering Field Division/Activity:

EFACHES

Major Claimant:

COMNAVSEASYSKOM

Size:

733 Acres

Funding to Date:

\$2,584,000

Estimated Funding to Complete:

\$20,584,000

Base Mission:

Principal Research, Development, Test and Evaluation center (RDT&E) for ordnance technology concepts and development

Contaminants:

Laboratory chemicals, explosive compounds, solvents, waste oil, PCBs, heavy metals, volatile and semi-volatile organic compounds

Number of Sites:

CERCLA:

14

RCRA Corrective Action:

1

RCRA UST:

0

Total Sites:

15

Relative Risk Ranking of Sites:

High:

5

Medium:

2

Low:

0

Not Evaluated:

1

Response Complete:

7

Total Sites:

15

BRAC IV


**BRAC IV**

## EXECUTIVE SUMMARY

White Oak Naval Surface Warfare Center (NSWC) is located on a 732 acre site approximately five miles north of Washington D.C. in Silver Spring, Maryland and is situated in both Montgomery and Prince George counties. NSWC was established on 1 September 1974 by merger of the White Oak Naval Ordnance Laboratory (NOL) and the Dahlgren Naval Weapons Laboratory in Virginia. The facility was recommended for closure by the BRAC IV commission in 1995. The functions performed at White Oak will be absorbed by Panama City Coastal Systems Station, Florida and Carderock's Indian Head and Dahlgren Divisions in Maryland. The facility is slated to cease operations on January 1997 and to permanently close on July 1997.

NSWC White Oak functioned as the principle Navy research, development, test and evaluation center for ordnance technology, concepts and systems. White Oak maintained the primary in-house research and development capabilities for Navy and Marine Corps strategic systems. Operations consisted of Naval mine and multimedia weapons systems, directed energy weapons, fuse development, small craft armament and ordnance technology. Tenants at NSWC White Oak are the Navy Tactical Support Activity, The Patent Counsel, the Navy Medical Command, NSWC Indian Head Detachment, NSWC Carderock Detachment and Dahlgren Detachment.

Environmental issues warranting investigation and remedial action were created primarily from past disposal procedures that led to chemical contamination. These practices included the landfilling of oils, the chemical additive PCBs, solvents, paint residue, miscellaneous chemicals (including mercury) and the disposal of production wastewater in dry wells. Also contributing to the environmental degradation at the Base were the burning of explosive ordnances, sludge composting and a radium spill. The primary contaminants of concern are volatile organic compounds, the chemical additive PCBs, cadmium, chromium, lead, nickel and ordnance

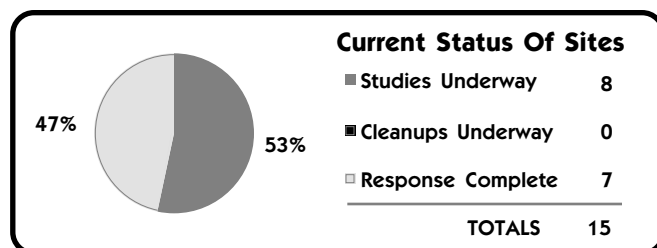
compounds (RDX, TNT). Potential contaminant migration at White Oak is most likely to be coupled with direct surface runoff or shallow groundwater discharge to surface waters.

A Technical Review Committee (TRC) was formed in 1989 and was converted to a Restoration Advisory Board (RAB) in October 1995. An Information Repository available to the public was established at the White Oak Library in White Oak, Maryland. A Community Relations Plan (CRP) was published in 1991.

CERCLA driven environmental studies have identified 14 sites on White Oak NSWC. Of these 14, seven required no further study or action after the Preliminary Assessment (PA) phase in 1984. The remaining seven sites proceeded into the Site Inspection (SI) phase that was completed in 1987. Contamination was found at all seven sites and they were recommended for an in-depth investigation in a Remedial Investigation/Feasibility Study (RI/FS) phase. The Apple Orchard Landfill, Site 2, was found to have the chemical additive PCBs in the surface soil that presented an immediate risk to those accessing the site. A fence was promptly installed to restrict access. The remaining six sites were found to have the potential for exposure to the contaminants.

During a RCRA Facility Assessment (RFA) conducted in FY89, 110 Solid Waste Management Units (SWMUs) were identified which included the 14 sites from the PA phase under CERCLA. Thirty-eight SWMUs were determined to require further investigation. There is one Underground Storage Tank (UST) site currently under RCRA investigation and is funded by the Defense Environmental Restoration Account (DERA).

The RI/FS recommended source removal for five sites (Sites 4, 7, 8, 9 and 11) and encapsulation for two sites (Sites 2 and 3). A public comment period and meeting were held in September 1994 to review the proposed remediation technologies recommended. A Remedial Design (RD) began for six of the sites (Sites 2, 3, 4, 8, 9 and 11) and is expected to be complete in FY97. The recommended remedial technologies for these sites were presented in the Final Proposal Plan published in September 1994.



## WHITE OAK NSWC RELEVANT ISSUES

### ENVIRONMENTAL RISK



**HYDROGEOLOGY** - All of the NSWC White Oak property lies within the drainage basin of the Paint Branch Stream, a 12 mile long tributary to the Northeast Branch of the Anacostia River. The Paint Branch Stream is the largest perennial stream in the immediate vicinity of NSWC White Oak. The soils, except for stream-bed soils, tend to be moderately to excessively well drained and moderately to severely eroded. NSWC lies on the soil profile boundary between crystalline bedrock of Piedmont and Coastal Plain sediments. Together they support an unconfined groundwater body several hundred feet thick. Coastal Plain sediments are only a few tens of feet thick and in many places have been entirely eroded. The Piedmont bedrock is the Wissahickon formation metamorphic gneiss; however, the upper 50 to 70 feet of the Wissahickon formation has been highly weathered to a clayey saprolite material. The Wissahickon gneiss and saprolite together account for at least 50 percent of the exposed formations. Most groundwater circulation at NSWC will generally occur within the upper 100 feet, moving from areas of rainfall infiltration on higher ground toward discharge areas supporting perennial stream flows at lower elevations. The flow gradients decrease near stream channels because groundwater migration pathways do not discharge directly to the nearest perennial stream, but circulate more deeply and slowly to discharge south or southeast of the property.

Potential contaminant migration at NSWC White Oak is most likely to be coupled with direct surface runoff or shallow groundwater discharge to surface waters. Contaminants moving along deeper groundwater flowpaths would become more attenuated by the processes of dispersion, adsorption on clays and chemical degradation. All soils in the area tend to be acidic (pH values range from 4.0 to 6.0) and are therefore corrosive to metals. The average annual precipitation is roughly 44 inches and snowfall accumulations of more than ten inches are rare.



**NATURAL RESOURCES** - Paint Branch and its tributaries are rated as Class III surface water by the State of Maryland (1980). Waters of this classification are natural trout waters having the potential for or being suitable for the growth and propagation of trout and capable of supporting natural trout populations and their associated food organisms. There is a small population of white-tailed deer that remain on NSWC property because there is little suitable habitat in the surrounding area. There are no known federally listed endangered or threatened species of animals or plants at NSWC White Oak.



**RISK** - A Human Health Risk Assessment and an Ecological Risk Assessment have been completed. Based on the human health risk assessment of the Remedial Investigation (RI), remediation was recommended for all seven of the investigated sites (Sites 2, 3, 4, 7, 8, 9 and 11). The RI at the Apple Orchard Landfill, Site 2, found the chemical additive PCBs in the surface soil that presented an immediate risk to those accessing the site. A fence was promptly installed to restrict access. The remaining six sites were found to have the potential for exposure to the contaminants and therefore needed further investigation. The Remedial Investigation/Feasibility Study (RI/FS) recommended source removal for five sites (Sites 4, 7, 8, 9 and 11) and encapsulation for two sites (Sites 2 and 3). A public comment period and meeting were held in September 1994 to review the proposed remediation technologies recommended.

The DOD Relative Risk System has been completed for Sites 2, 3, 4, 7, 8, 9 and 11. High risk is documented for soil at Sites 2 and 7 due to presence of nearby workers. High risk is also reported for groundwater at sites 8, 9 and 11 because of potential migration pathways to the Paint Branch stream.

### REGULATORY ISSUES



**LEGAL AGREEMENTS** - There are no reported Federal Facility Agreements (FFAs) or Federal Facility Site Remediation Agreements (FFSRAs) in place at NSWC. A RCRA Part B Permit was applied for in FY92. The permit has not been issued to date. An agreement was negotiated between NSWC and EPA that resulted in the closure of the NSWC sewage treatment plant in July 1982. A compliance agreement was negotiated between NSWC and the State of Maryland in 1982 to convert the boiler plant from fuel oil to natural gas that reduced particulate emissions.

### COMMUNITY INVOLVEMENT



**RESTORATION ADVISORY BOARD** - A Technical Review Committee (TRC) was formed in 1989. The committee included representatives from the Hillendale Citizens Organization, Prince George's County, Montgomery County, The State of Maryland, EPA Region III, the Base Commander, the Base Environmental Officer and the Naval Facilities Engineering Command Chesapeake Activity (EFACHES) Remedial Project Manager. The TRC was converted to a Restoration Advisory Board (RAB) in October 1995. The RAB is very active, meets monthly and is involved in all remedial decisions. The support and interaction gained through community involvement and regulatory interface has enhanced the cleanup process at NSWC.



**COMMUNITY RELATIONS PLAN** - A Community Relations Plan (CRP) was completed in October 1991. A public meeting to discuss sites was held 7 July 1994. Site tours are offered on request. In FY95 there were approximately four tours provided to the public at various sites.



**INFORMATION REPOSITORY** - An Information Repository available to the public was established at the White Oak Library in White Oak, Maryland. An Administrative Record was set up in 1994 and is maintained at the EFACHES and a copy is at the Public Affairs Office at NSWC White Oak.

### BASE REALIGNMENT AND CLOSURE



**BRAC** - NSWC White Oak was recommended for closure by the Base Realignment and Closure (BRAC) IV commission in 1995. The functions performed at White Oak will be absorbed by Panama City Coastal Systems Station in Florida and Carderock's Indian Head and Dahlgren Divisions in Maryland. The facility is slated to cease operations in January 1997 and to permanently close in July 1997.



**BRAC CLEANUP TEAM** - To assist site closure and expedite land transfer, a BRAC Cleanup Team (BCT) was formed on 14 December 1995. Team members meet regularly and include: The EPA Region III, the State of Maryland and the NSWC White Oak Base Environmental Coordinator (BEC).



**DOCUMENTS** - A BRAC Cleanup Plan (BCP) is being prepared and will be completed in November 1996. A BRAC Environmental Baseline Survey (EBS) will be completed in April 1996.



**LEASE/TRANSFER** - Preparation is underway to conduct a Finding Of Suitability to Transfer (FOST).



**REUSE** - A BRAC Reuse Plan is being developed to lease 710 of the 732 acres at NSWC to the Food and Drug Administration (FDA), Army and Air Force.



**FAST-TRACK INITIATIVES** - Sites 8, 9 and 11 have undergone Remedial Design for a soil removal and are on a fast-track to be cleaned.

## WHITE OAK NSWC HISTORICAL PROGRESS

### FY84

**Sites 1-14** - An Initial Assessment Study (IAS) similar to a Preliminary Assessment (PA), was completed which identified 14 potentially contaminated sites. Seven sites (Sites 1, 5, 6, 10, 12, 13 and 14) were determined not to present a threat to human health or the environment and No Further Action (NFA) was recommended. Seven sites (Sites 2-4, 7-9 and 11) were recommended for further investigation.

### FY85

**Sites 1, 5-6, 10 and 12-14** - NFA was determined for these sites. Site status may change with BRAC evaluation.

### FY87

**Sites 2-4, 7-9 and 11** - A Verification Step study, similar to a Site Inspection (SI), was completed in April 1987. The report recommends additional groundwater monitoring and collecting additional sediment and surface water samples.

### FY89

**SWMUs 1-110** - The RCRA Facility Assessment was completed. Thirty-eight SWMUs were determined to require further investigation.

**Sites 2-4, 7-9 and 11** - Phase I of the RI was completed.

### FY93

**Sites 2-4, 7-9 and 11** - The Decision Documents for the remedial actions to be used were completed.

**Sites 2-4, 7-9 and 11** - The Remedial Investigation/ Feasibility Study (RI/ FS) was completed. The FS recommends source removal for five sites (Sites 4, 7-9 and 11) and encapsulation for the two remaining sites (Sites 2 and 3).

**Site 2** - A Interim Remedial Action (IRA) was completed to install a fence around the site to restrict access.

### FY94

**Sites 2-4, 8-9 and 11** - The Remedial Design (RD) phase began.

## PROGRESS DURING FISCAL YEAR 1995

### FY95

**Sites 2-4, 8-9 and 11** - The RD phase was underway. For Sites 2 and 3,

landfill caps were being designed. For Sites 8, 9 and 11, excavation and soil removals were designed.

## PLANS FOR FISCAL YEARS 1996 AND 1997

### FY96

**Sites 2-4** - An RD will be completed.

### FY97

**Sites 8, 9 and 11** - An RD will be completed.

**Sites 2-4, 8-9 and 11** - The Remedial Action (RA) phases will start, although plans may be revised due to the recent BRAC status of the base.

## WHITE OAK NSWC PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	14							
SI	7							
RI/FS	7							
RD			3	3				1
RA								7
IRA	1(1)							
RC	7							7
Cumulative Response Complete	50%							100%
RCRA CA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
RFA	1							
RFI								1
CMS								1
DES								1
CMI								1
IRA								
RC								1
Cumulative Response Complete								100%